

THE BALANCE

Health Services

Nutrition and Physical Activity

Environmental Factors

Division of Nutritional
Health and Services



A Bi-Monthly
Publication

July 2002

Volume 1, Issue 2

Issue Highlights:

- 1 Nutrition During Preconception and Gestation
- 2 A Message From the Director
- 3 Prenatal Nutrition (WIC and FMNP)
- 4 The Fish You Eat During Pregnancy May Matter!
- 5 Focus On... Innovative Strategies to Improve the Health of Infants on WIC and Medicaid

Nutrition During Preconception and Gestation

Healthy eating behaviors are essential for healthy babies. If healthy eating is continued during pregnancy, these behaviors will contribute to appropriate fetal development at each stage of gestation, resulting in a healthy baby. However, healthy foods alone cannot reduce the risk of birth defects such as spina bifida, one of the most common neural tube defects. To reduce the risk of birth defects, the American Academy of Pediatrics and the March of Dimes recommend that women of childbearing age consume a multivitamin containing 400 see GESTATION on page 3

Study Links Cognitive Stimulation in the Home with Decreased Childhood Obesity Risk

A recent study by Richard S. Strauss, MD, and Judith Knight, MD, evaluating the impact of the home environment, specifically of cognitive stimulation on young children, may have intriguing implications for program developers, policy makers, parents, and anyone else who is concerned with preventing overweight among the nation's young people. Published in the journal *Pediatrics*, the study followed a total of 2,913 children between the ages of 0 and 8 years for a 6-year period.

Using a previously validated scale designed to assess the quality see OBESITY on page 4

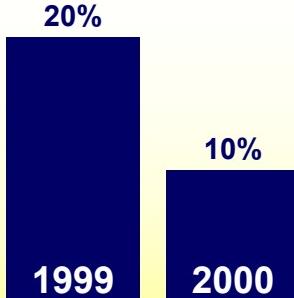
A Healthy Need for Folic Acid

There is a continuous need to dramatically increase the consumption of folic acid among women of childbearing age.

In 1999-2000, the percentage of folate consumption among pregnant women participating in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program in Missouri decreased from 20 to 10 percent. This 10 percent decrease is due to the fact that these women consumed less of the foods that had a high content of folic acid.

Several activities that the division will undertake with this partnership include developing a Folic Acid web page that will be part of the division's web page. This page will include facts and educational see FOLIC ACID on page 5

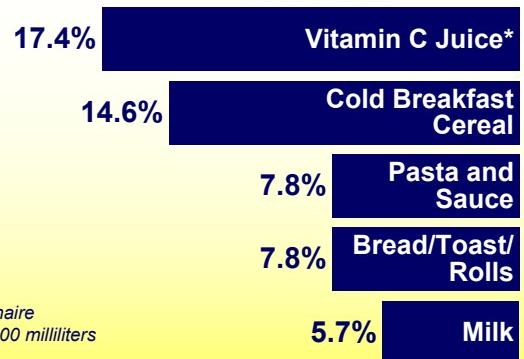
Percent of Pregnant Women in WIC Meeting the RDA of Folate



Source: Harvard Food Frequency Questionnaire
*Contains at least 30 mg of Vitamin C per 100 milliliters
□ Source: WIC Regulations

Data Bytes

Top Five Foods Contributing to Total Folate Intake Among All Pregnant Women in WIC, 2000-2001



MESSAGE FROM THE DIRECTOR...

Every year approximately 78,000 babies are born in Missouri – new lives that offer the promise of a new beginning. Unfortunately, not every baby has an equal opportunity for healthy growth and development. Many families still do not understand the link between good nutrition, the preconceptional health status of the parents, and the birth outcome.

Babies born to inadequately nourished mothers are at increased risk for prematurity, low birth weight, being small for gestational age, and birth defects. The U. S. Public Health Service estimates that 50-70% of neural tube defects might be prevented if all women of childbearing age who are capable of becoming pregnant consume 400 micrograms of folic acid daily throughout their reproductive years. Further, there are some indications that folic acid use may also reduce the risk for other birth defects, such as cleft lip and palate and certain congenital heart defects. Did you know that each year in Missouri, approximately 12 infants are born with anencephaly and 50 with spina bifida? According to the March of Dimes, the average total lifetime cost to society for each infant born with spina bifida is approximately \$532,000 per child. This estimate is only an average, and for many children the total cost may be well above \$1,000,000. Based upon these estimates, if 50% of the births with spina bifida were prevented, we would save between \$13.3 million and \$25 million dollars – avoidable expenditures that can be linked directly to an improvement in the nutritional health status of Missourians. Costs that can be averted by reducing the prevalence of one nutrition-related birth defect. Funds that could be used by or on behalf of Missouri families in innumerable ways to improve the quality of their lives. And how can you quantify the emotional toll on families of meeting the needs of a child with special health care needs?

As we focus on improving the manner in which we provide nutrition education, counseling, and therapy, we should also remember that adequate intake of foods necessary to maintain good health and provide growth for the fetus is more likely to occur if there is good oral health. Further, individualized assessment of nutritional status at the beginning of prenatal care and continuous evaluation throughout the pregnancy are essential. Ideally this assessment should occur before the woman becomes pregnant. Women whose weights are within normal limits when they begin their pregnancy, and who maintain an acceptable weight gain during the pregnancy, have better pregnancy outcomes. The nutritional health of the father cannot be overlooked – low intakes of vitamin C have been indirectly linked to a higher risk of birth defects and genetic disease.

Women and men who are healthy, well nourished, and physically active enter the reproductive process more prepared for the physical and emotional challenges of gestation and childbirth, as well as offer a healthier environment for the development of a healthy fetus. Assurance of good nutrition and the other factors that promote healthy conception and pregnancy requires an integration of efforts among physicians, nutritionists, educators, and others who influence the behaviors of nascent parents.



Gretchen C. Wartman, Director
Division of Nutritional Health and Services

Gestation

continued from page 1

micrograms of folic acid every day, and that they eat a healthy diet. Some foods rich in folic acid are citrus fruits and juices, green leafy vegetables, beans, peanuts, and broccoli. There are also foods such as cereals, flour, and other grain products that are fortified with folic acid.

Despite the recommendations, few women take vitamins with folic acid. Only 18 percent of non-pregnant women aged 18-24 report taking a vitamin with folic acid, 30 percent of non-pregnant women 25-35 do so, and 33 percent of non-pregnant women 35-45 report taking such a vitamin daily. The percentages are even lower among women with low levels of income and education, according to a survey conducted by the March of Dimes.

Furthermore, inadequate nutrition, overweight, and lack of physical activity contribute to the risks for both mother and for the baby. A report recently published by the March of Dimes Task Force on Nutrition and Optimum Development indicates that women who were overweight prior to pregnancy are at higher risk for complications during pregnancy and at delivery, and that there is greater risk of serious problems for the baby.

Weight is clearly related to healthy babies. According to Richard J. Decklebaum, M.D., Professor of Nutrition at Columbia University, New York, and Chairman of the March of Dimes, "Weight before pregnancy matters more than people realize, even

health professionals. For the moms, there are serious complications such as gestational diabetes, dangerously high blood pressure, and hospitalization; and for the babies, prematurity, serious birth defects, and other severe problems." Dr. Decklebaum also notes that obesity is especially dangerous for women of childbearing age as it creates a vicious cycle from one generation to the next, since babies

born to obese women are more likely to grow up obese compared to babies who were not born to obese women.

To prevent overweight among childbearing women we need to encourage consistent, balanced nutrition and regular exercise.

For additional information, contact Rosalind Wilkins at (573) 751-6183.

Prenatal Nutrition (WIC and FMNP)

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the WIC Farmers' Market Nutrition Program (FMNP) are both supplemental nutrition programs administered by the Division of Nutritional Health and Services.

The WIC Program is a short-term, low-cost preventive health program for families who are at nutritional risk due to low income and nutrition-related health conditions. WIC conducts nutritional risk assessments and eligibility to the program is based on nutritional risk and income guidelines. Pregnant, breastfeeding and non-breastfeeding postpartum women, infants, and children up to their fifth birthday who are eligible receive nutritional counseling, nutrition education, appropriate referrals, and a monthly food package of nutritious supplemental food. The WIC food package provides nutrients critical to growth and development that are typically lacking in the diet of the WIC population. Prenatal women

and their families are provided information and counseling for the adverse effects of smoking and substance abuse during pregnancy, as well as information and strategies to support breastfeeding. The WIC program is available statewide in each county through a variety of providers.

The FMNP contributes to the preventive nature of the WIC Program. The FMNP offers WIC clients additional nutrient-rich foods by providing participants access to fresh fruits, vegetables, and culinary herbs from local farmers at contracted farmers' markets. Farmers' markets offer local farmers the opportunity to sell produce directly to consumers. These same markets offer WIC participants a locally available supply of fresh produce which is often lacking in the diets of the WIC population. The FMNP is currently available only in ten counties due to limited federal, state, and local funding. Those counties are Cole, Boone, see *WIC AND FMNP* on page 4

WIC and FMNP

continued from page 3

Howard, Jackson, Lafayette, Lawrence, Ozark, Platte, Springfield-Greene, and Washington.

The WIC and FMNP Programs play an important role in assuring good nutrition for participating prenatales. Studies have shown that pregnant women who participate in WIC have longer pregnancies leading to fewer premature births, have fewer low and very low birth-weight babies, experience fewer fetal and infant deaths, seek prenatal care earlier in pregnancy, and consume more of such key nutrients as iron, protein, calcium, and vitamin C. Other studies have shown that every dollar spent on pregnant women in WIC produces \$1.92 to \$4.21 in Medicaid savings for newborns and their mothers.

The WIC Program provides pregnant women with milk, cheese, eggs, vitamin C-fortified juice, iron-fortified cereal that is low in sugar, and dried beans or peas or peanut butter. The FMNP allows purchase of 15 different fruits including a variety of berries, melons, grapes, apples, pears, and apricots; 33 vegetables including cruciferous, green leafy, dark green, yellow, and starchy varieties; and 12 culinary herbs.

The FMNP is an important companion to the WIC Program, as national surveys indicate that most Americans are not eating the recommended amounts of fruits and vegetables. The 5 A Day survey (1991) and the Continuing Survey of Food Intakes by Individuals (1989-1991) found that only 23 and 32 percent, respectively, of those surveyed consumed 5 or more

servings of fruits and vegetables daily. The Food Guide Pyramid recommends 3 to 5 servings of vegetables and 2 to 4 servings of fruit daily. In addition, pregnant women have increased daily needs for foods rich in vitamins A and C and folate. The WIC and the FMNP Programs provide foods with key nutrients that are important for good health.

For additional information on, contact Victoria Warren at (573) 751-6265.

Obesity

continued from page 1

of a child's home environment, Doctors Strauss and Knight examined the presence or lack of cognitive influences such as books, musical instruments, a safe play environment, and the frequency with which a child gets out of the house. The researchers measured the impact of these variables on childhood obesity (defined in this study as a body mass index $>95^{\text{th}}$ percentile for age and gender at 6-year follow-up) along with the roles of race, marital status, maternal education, family income, and parental occupation.

Though other factors such as maternal obesity did indeed influence the development of obesity in children, the researchers concluded that, "In summary, our results indicate that children raised in environments with high levels of cognitive stimulation have the lowest rates of developing obesity independent of socioeconomic factors, race, maternal marital status, or maternal BMI." Interestingly, the researchers also found that children with greater cognitive

stimulation had significantly lower rates of obesity even after controlling for television viewing.

Drawing attention to a wealth of research on the effectiveness of parental education programs in improving the home environment, Doctors Strauss and Knight call for the exploration of programs addressing their conclusions and programs which may hold rich possibilities for preventing what they refer to as, "the most common health problem facing children."

Source: Strauss R, Knight J. Influence of the Home Environment on the Development of Obesity in Children. Pediatrics, June 1999, Vol.103 No. 6.

The Fish You Eat During Pregnancy May Matter!

Recent studies offer hope of reducing postpartum depression among new mothers. In the U.S. 15 to 20 percent of new moms experience this tragic condition.

Research recently presented at a national meeting of the American Chemical Society suggests that consumption of fatty fish such as salmon and tuna may prevent postpartum depression. Dr. David Kyle, Director of the Mother and Child Foundation, an organization that conducts research on nutrition for mothers and its effects on their babies, explained that fatty fish contains a fatty acid known as DHA (decosahexaenoic acid) and that the incidence of postpartum depression may be due to low levels of DHA. Another researcher has

see FISH on page 6

FOCUS ON...

Innovative Strategies to Improve the Health of Infants on WIC and Medicaid

Recent research suggests that new strategies can improve the health of infants on Medicaid. A study was conducted in Detroit, Michigan, to determine whether providing WIC (Special Supplemental Nutrition Program for Women, Infants, and Children) services at managed care organizations (MCO) sites (collocating) improves the health of WIC clients on Medicaid. The investigators studied the 1997 cohort of infants born in Detroit who were enrolled in both Medicaid and WIC. The infants were divided into 5 groups depending on their sources of health care services: (MCO A, MCO B, or neither) and WIC services (collocated at MCO A, MCO B, or public health departments). Groups 1 and 2 were the intervention group. They were comprised of infants who obtained services from managed care organizations A and B, respectively, and also received WIC services at the same locations. Groups 3 and 4 were the control groups and were infants who obtained health care services from MCO A and MCO B but received WIC services from the local health departments. Group 5 was an additional control group of infants who did not receive health care services from MCO A or MCO B.

The managed care organizations used different strategies. MCO A had WIC staff working with physicians in the clinics to increase immunization rates, whereas MCO B had the WIC staff working together with clinic staff to refer

clients who were at risk to dieticians or for additional medical or social services.

The outcomes measured in this research were the percentage of infants that returned to WIC for a mid-year evaluation and the infants' weight gain and immunization status. After adjusting for family size, birth weight, and mid-year evaluation by WIC, Group 2 infants



had gained about 400-450 grams more weight than did those in the other groups, while Group 1 infants only gained about 30-55 grams more than the non-collocated groups. Group 1 had the highest rates of up-to-date immunizations

of the 5 groups.

The researchers concluded that the collocated sites achieved the best results. However, both collocated sites had weaknesses in their strategies. MCO B failed to design ways to improve immunizations at visits to collocated sites, and MCO A failed to identify a referral system for high-risk infants. Clearly, providing WIC services at managed care sites has the potential to improve the health of infants on Medicaid. However, to be successful, collocation requires a combined investment in resources and in management time for both the WIC program and the managed care programs.

Source: Kendall A, Peterson A, Manning C, Xu F, Neville L, Hogue C. Improving the Health of Infants on Medicaid by Collocating Special Supplemental Nutrition Clinics with Managed Care Provider Sites. *Am J Public Health.* 2002, Vol 92, No 3: 399-403.

Folic Acid

continued from page 1

information, a list of programs and services, a list of educational materials, and resources on folic acid. These materials will be in printable form.

Folate (folic acid) plays an essential role in making new cells throughout the body and works with vitamin B12 to form hemoglobin. Women of childbearing age need 150 micrograms of folate daily, while pregnant women's daily

needs for folate increase to 400 micrograms. Folate can be obtained through foods. Leafy, dark green, yellow, and some other fruits and vegetables are good sources of folic acid. These include blackberries, strawberries, brussels sprouts, cabbage, okra, beets, peas, spinach, broccoli, and sweet corn. In addition, orange juice is high in folate and cereals are fortified with folate. Folic acid has been the focus of much attention in the area of pre-
see FOLIC ACID on page 6

Fish

continued from page 4
found that rates of postpartum depression declined as DHA intake was increased. If these studies are substantiated by further research, their findings will be a blessing for mothers all over the world that suffer postpartum depression.

However, on a note of caution the FDA recommends that pregnant women and women of childbearing age should not eat shark, swordfish, king mackerel, or tilefish that may contain high levels of mercury. The mercury may harm an unborn baby's developing nervous system.

Source: Warner, Jennifer, Fat in Fish May Fight Postpartum

Depression, *WebMD* <http://content.health.msn.com/content/article/3606.1448>.

Folic Acid

continued from page 5
conception and prenatal nutrition.

The American Academy of Pediatrics (AAP) recommends that all women of childbearing age consume 400 micrograms of folic acid daily to prevent neural tube defects (NTDs). Furthermore, the Centers for Disease Control and Prevention (CDC) recommends that women who have had a previous NTD-affected pregnancy increase their folic acid intake to 4,000 micrograms beginning at least

one month prior to conception and continuing through the first trimester.

Neural tube defects are among the most common birth defects that cause infant disability and deaths. NTDs, which include spina bifida (open spine) and anencephaly (underdeveloped brain and skull) occur in approximately 1 in every 1,000 births in the United States. Research has shown that 70 percent of NTDs can be prevented if all women take the recommended dose before conception and continue for the first four weeks of pregnancy.

For additional information, contact Rosalind Wilkins at (573) 751-6183.